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## The effect of single and double air inlets on swirling flow in a reactor of a fluidized bed gasifier (Article)

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## Abstract

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In this work, the effect of single and double air inlets on swirling flow in a reactor of fluidized bed gasifier was studied numerically. The reactor diameter (D) was 20 cm, and the reactor length was 7.5D. The geometry of the reactor bottom was conical. In order to generate swirling flow in the reactor , the air inlet pipe with inner diameter of 46.8 mm was assembled tangentially to the bottom of the reactor . The comparison of the effect of single and double air inlets were studied based on the same mass flow rate. A 3-D numerical model of the reactor was created using a commercial software of ANSYS Ver.15.0 (Fluent). The results showed that swirling flow at the bottom of the reactor for the case of double inlets was more uniform than that of single inlets . Therefore, double air inlets were applied to design and fabricate a swirling fluidized bed gasifier . © 2018 Penerbit Akademia Baru.

## Author keywords

CFD | Flow characteristic | Fluidized bed gasifier | Swirl

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